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Monthly News Letter

Bureau of Agricultural Engineering

U. S. DEPARTMENT OF AGRICULTURE

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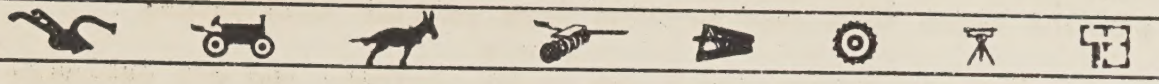

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The Advisory Committee of the College Section, A.S.A.E., held their annual meeting at the Bureau April 11-13. Among the matters discussed were the proposed regional laboratories provided for in the new Agricultural Adjustment Act, rural electrification research and flood control work as related to agricultural engineering.

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Deadline For Bids

Advice has been received that June 10 will be the last opening date for bids in the Division of Purchase, Sales, and Traffic, for equipment or supplies chargeable to the 1938 funds and that bids, whether opened in the Washington Office or in the field, should be in the Division of Purchase, Sales, and Traffic with the Bureau recommendation for acceptance not later than June 20.

Requisition should therefore be initiated promptly for any supplies or equipment which will require competitive bids in order that there may be ample time in the Washington Office to handle the transaction.

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During the first week of April Lewis A. Jones reviewed the work of the sugar-cane drainage project at the Crescent Farm Plantation, Houma, La., being conducted under the supervision of E. Gregson Brown. He also spent several days with B. O. Childs, District Engineer of CCC drainage camps, Lafayette, La., covering the work program and operation of the 5 CCC drainage camps in that State.

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Jesse R. Cowand was recently transferred from the Biological Survey field work under the supervision of Warren E. Hall to the Division of Drainage to assist F. E. Staebner with the supplemental irrigation projects. Mr. Cowand attended Mississippi State College, receiving his B.S. degree in electrical engineering, June 1930. Before coming into the Bureau of Agricultural Engineering he was associated with the Southern Bell Telephone and Telegraph Company, the Federal Land Bank of New Orleans, and the Bureau of Biological Survey.

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F. E. Staebner and Jesse R. Cowand left Washington April 10 to spend several weeks at Willard, N.Car. on the strawberry irrigation project. Because of mild weather during the early spring picking began this year several days earlier than usual.

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John C. Cotton spent two weeks visiting the CCC drainage camps in Illinois, Iowa, Missouri and Kentucky to review the camp research work on the flow of water in drainage channels. These studies are under the supervision of J. W. Kulmel, Indiana and Iowa; R.W. De Weese, Ohio; and R. P. Beasley, Missouri and Kentucky. The camps have made approximately 2,000 stream measurements on some 90 selected channel courses.

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W. J. Frere, Jr., Superintendent of the drainage camp at Goldsboro, Md., has been appointed drainage inspector for the 5 camps located in Delaware and Maryland. Mr. Frere began his new duties April 18 at the District Office, Camp D-2, Georgetown, Dela.

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The fifth anniversary of the founding of the Civilian Conservation Corps was observed by Central District Drainage Camps through "open house" celebrations held at the camps. Attendance ranging from 600 to 1,000 visitors gives evidence of the large local interest shown in the men and the work being done by the drainage camps. The programs included talks by civic leaders and camp officials; conducted tours of the camp area showing the shop, garage, offices, living quarters, dining hall; displays of drainage tools and equipment, research work, and educational facilities; and entertainment.

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Although experiencing considerable rain and high water on numerous projects throughout the work areas, there was an increase in total production by the camps during March as preparations for the 1938 construction season is getting under way. The report for the month showed a total of 7,030,000 square yards of clearing, 781,284 cubic yards of excavation and embankment, 15,300 lineal feet of tile reconditioning and 11,017 man-days on structural and other work.

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W. W. McLaughlin represented the Bureau at a meeting held at Bismarck, North Dakota, beginning April 18, at which representatives of several Federal agencies and five of the northern Great Plains States hope to develop a plan for the stabilization of agriculture in that area.

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For the past three weeks M. R. Lewis has been in the Washington office preparing a design of a reservoir dam for the Southern Great Plains field station of the Division of Dry Land Agriculture, B.P.I., located at Woodward, Okla. The dam will be approximately 40 feet high and 1,000 feet long on the crest. The most difficult problem has been the design of a spillway to take care of a maximum flood of 10,000 second feet.

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In connection with the project, Spreading Water for Storage Underground, Dean C. Muckel reports that the floods in southern California during the first week of March raised the flows in most streams beyond the capacity of the diversion works, causing the failure of many structures on the spreading areas. Some damage occurred on all areas set aside for spreading but in most cases portions of the systems remained, and spreading operations were started shortly after the flood had passed. In general, damage was caused by inadequate diversion works and flood channels by-passing the spreading areas. Debris dunes forming in flood channels in many cases caused the streams to break out of their normal courses and cut new channels across the debris cones.

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Colin A. Taylor, taking advantage of the opportunity to make a study of root penetration in orchards and vineyards where floods of March 1 and 2 had undercut trees and vines, visited many of the devastated sections of southern California, making observations and photographing exposed root systems. Some interesting information was obtained as to downward and lateral distribution of roots. For example, a grape vine with 3 feet of stem, growing in Hanford sand, on the Cucamonga wash near Ontario, was found to have 15 feet of roots, extending laterally toward the stream channel.

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Mr. Taylor reports that the advantage of broad, shallow furrows in citrus orchards for controlling run-off was demonstrated during the recent floods. An area of 150 acres of citrus orchards had been laid out with this type of furrow by the Division of Irrigation in the fall of 1937. A heavy mustard cover crop was disked under in January and new furrows made on one 5-acre area. Even without the protection of the cover crop, no serious damage was done by floods on this area.

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John O. Reeve made a transit survey of the land and buildings occupied by the Rubidoux Experiment Station at Riverside, Calif., where a cooperative regional laboratory is to be established for studying the use of saline water for irrigation. The laboratory, established under the Bankhead-Jones Act, will be under cooperative management of the Bureau of Agricultural Engineering, the Bureau of Plant Industry, and the agricultural experiment stations of 11 Western States.

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J. C. Marr devoted most of March to analyzing snow cover data. A very satisfactory run-off curve was developed for Snake River above Jackson Lake. It has been found that the precipitation for October and November as well as for April, May and June should be added to the water stored as snow over the watershed to procure a satisfactory run-off curve. Snow surveys have been made on this watershed for 19 years, and afford enough data to assure a fair degree of reliability of the run-off curve.

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Borings, cross-sections, topography, etc., required in connection with plans for the proposed dam to be constructed by the Bureau of Plant

Industry at Woodward, Okla., were taken by Harry G. Nicklo. Soil samples of the various materials encountered along the axis of the proposed dam and in the spillway area were taken to Austin, where mechanical analyses were made in the Bureau of Agricultural Engineering laboratory. Chemical analyses of water samples obtained at the proposed dam site were made by the University of Texas.

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Orchard soil moisture calibration of the "Availabilimeter" was initiated by R. B. Allyn on 38 orchard irrigation blocks at the Medford experiment station. This device is being developed for practical orchard soil moisture determination. Mr. Allyn is also making a study of soil plasticity in terms of moisture content for the purpose of calibrating the availabilimeter.

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Coincident with publication of a report by the National Resources Committee on the Rio Grande Joint Investigation in the Upper Rio Grande Basin in Colorado, New Mexico and Texas (which includes as Part III the report of the Bureau of Agricultural Engineering on Water Utilization in that area), is the announcement that the Compact Commissioners have reached an understanding, subject to approval by their State legislatures, on a new tri-state agreement covering allotment of the waters of the Rio Grande. The compact apportions the total run-off above Ft. Quitman, Texas, and protects existing water use in Colorado, New Mexico and Texas by establishing schedules of water delivery by Colorado to the Colorado-New Mexico State line and by New Mexico to Elephant Butte Reservoir for use in southern New Mexico, Texas, and Mexico. Years of above and below average water supply are provided for by a system of debits and credits, with a maximum amount of either. Under this accounting plan the annual release of 790,000 acre-feet of water from Elephant Butte reservoir is assumed, unlimited reservoir development in San Luis Valley is permitted, and rights of the Federal Government and treaty obligations to Mexico are protected. (The Rio Grande Joint Investigation report is published as Part VI of the Regional Planning series of the National Resources Committee. Copies may be purchased from the Superintendent of Documents, Washington, D. C. at a cost of $3.50 for the two volumes.)

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R. B. Gray left Washington April 17 to inspect work under way on insect pest control machinery at Toledo, Ohio, corn production machinery at Ames, Iowa and sugar beet production machinery at Fort Collins, Colo. Mr. Gray will attend the annual Farm Chemurgic conference at Omaha, Nebr., before returning to Washington.

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G. A. Cumings, accompanied by D. B. Eldredge, left Washington April 13 to conduct fertilizer placement experiments on cotton and tobacco in the southeastern states. Extremely dry weather at Florence, S. C., during the late winter and spring months has made the growing of tobacco plants difficult, with a resulting shortage for early transplanting.

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Fertilizer placement experiments for pasture grass were begun at LaFayette, Indiana, by L. G. Schoenleber and D. B. Eldredge early in April. Mr. Schoenleber is now completing the schedule of work on other crops in the Middle West.

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W. H. Redit reports fertilizer placement experiments in progress for cotton, lima beans, and other crops at several points in Georgia and South Carolina.

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The work of E. M. Mervine and S. W. McBirney in developing single ball sugar beet planters has created much interest because of the saving in seed and reduction in hand labor for thinning. Sugar beet growers are encouraging the commercial adaptation of this type of planter. Test plots are being planted with single seed planters developed by the Bureau as well as with experimental units now undergoing tests by manufacturers.

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J. W. Randolph reports that a large number of field plantings are being made in Alabama with variable depth cotton planters in cooperation with the Farm Security Administration.

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Orve K. Hedden returned to Toledo, Ohio, April 15 from Florala, Ala., where he has been since February 1, assisting in the develop - ment of burner equipment for use in the control of the white fringed beetle. A mule-drawn vaporizing type of burner was designed and constructed, making use of commercial burner units.

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Two types of power wheelbarrow sprayers have been constructed in the Toledo shop for use in spraying experimental plots of sweet corn for the control of European corn borer. These sprayers use a 3/4 horsepower gasoline engine for power to drive a reciprocating pump delivering about two gallons per minute at a pressure of 150 pounds. The entire unit weighs about 125 pounds.

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Conferences were held at the Washington office the week of Mar.28 as steps in the preparation of bulletins to acquaint farmers with expected requirements for storage of corn and wheat under the Ever-Normal Granary. The following agricultural engineers from points outside Washington assisted in this work: F.C. Fenton, Kansas State College, R. C. Miller, Ohio State University, H. J. Barre, Iowa State College, Thayer Cleaver, University of Illinois; I. D. Mayer, Purdue University, G. J. Burkhardt, University of Maryland.

Other agencies represented at these conferences include the Secretary's Office, Extension Service, Agricultural Adjustment Administration, Bureaus of Agricultural Economics, Biological Survey, Entomology and Plant Quarantine, Plant Industry, and Oregon State College. It is expected that much repairing and rebuilding of bins and cribs will be necessary to put them in condition for safe long time storage of grain under Federal loans.

On March 31 the group attending these conferences had luncheon with Secretary Wallace. The Secretary spoke briefly on the Ever-Normal Granary principles. His talk was followed by a discussion of new developments in agricultural engineering and the need for agricultural engineers to find new ways of accomplishing desired objectives.

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The corn cribs of new design, being developed by the Carnegie Illinois Steel Company and associated companies at the suggestion of the Agricultural Adjustment Administration, are on display in the Washington office and have attracted a good deal of attention among Department officials. Full size models of these cribs are to be erected for testing in connection with the corn storage project at Ames, Iowa.

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C. F. Kelly spent two weeks at Fargo on wheat storage studies. Six large bins and 8 small bins containing a total of approximately 3,000 bushels are being held for long time storage studies. All bins were completely sampled to detect trends of moisture movement within the bins due to seasonal variation in temperature.

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On April 6 J. R. Dodge gave a radio talk on the Farm and Home Hour entitled "Common-Sense Improvements Made in the Farm Home".

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W. V. Hukill attended the meeting of the Committee on Hygiene of Housing of the American Public Health Association at Norris Park, Tennessee, on April 5 and 6. This committee has formulated 30 principles of housing among which are requirements for temperature control, ventilation, and lighting. He also observed some of the T.V.A. experimental projects at Knoxville, and the project on extension of rural lines at Tupelo, Mississippi.